Forest
Practices
Board

Audit of Forest Planning and Practices

BC Timber Sales and Timber Sale Licence Holders
Chilliwack Natural Resource District portion of the
Chinook Business Area

FPB/ARC/178

April 2015

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Audit Results

Introduction

The Forest Practices Board is the public's watchdog for sound forest and range practices in British Columbia. One of the Board's roles is to audit the practices of the forest industry to ensure compliance with the *Forest and Range Practices Act* (FRPA) and the *Wildfire Act* (WA).

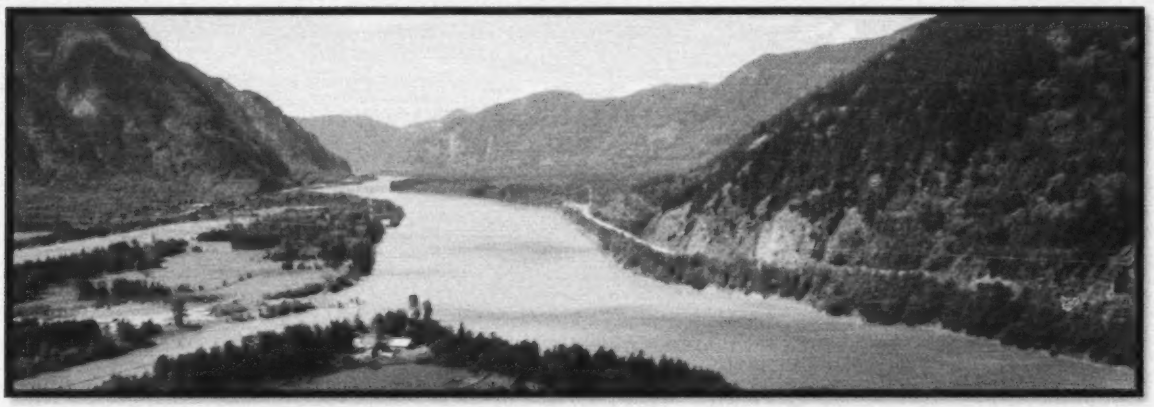
As part of its 2014 compliance audit program, the Forest Practices Board randomly selected the Chilliwack Natural Resource District portion of BC Timber Sales' (BCTS) Chinook Business Area for audit. This area is also called the Fraser Timber Supply Area (TSA). A map of the audit area appears on page 2.

This report explains what the Board audited and the results. Detailed information about the Board's compliance audit process is provided in Appendix 1.

Background

The 1.4 million hectare Fraser TSA is bounded by Bowen Island to the west, Manning Park to the east, Boston Bar to the north and the United States border to the south. The TSA is the most populated in the province, as it includes the lower mainland.

Tourism, recreation, biodiversity and conservation values are all very important in the Fraser TSA. The area provides numerous recreation opportunities for people living in the Lower Mainland and beyond, and several major highways with exceptional scenic values cross the TSA.



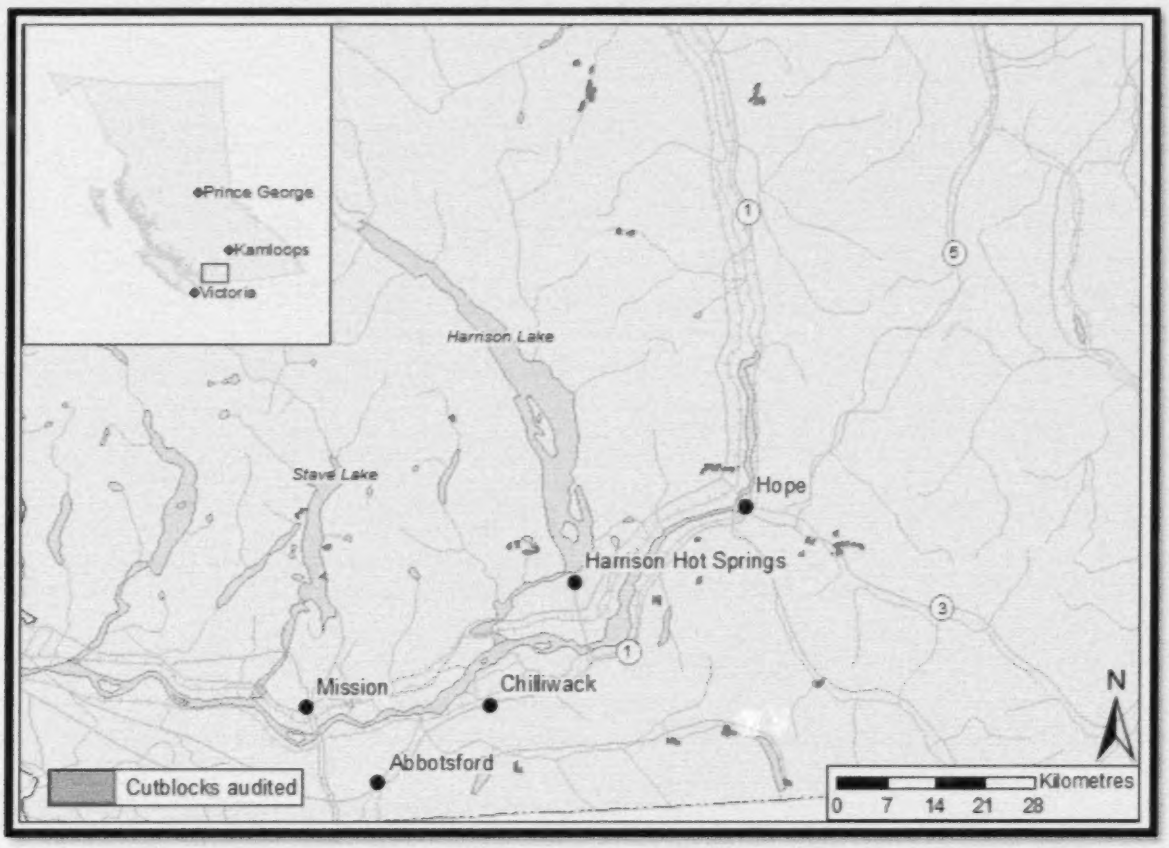
Overview photo of a portion of the Fraser TSA.

The TSA features five biogeoclimatic zones: coastal western hemlock, mountain hemlock, interior Douglas-fir, Engelmann spruce-subalpine fir, and alpine tundra. The varied topography and climate support a rich variety of wildlife. Native mammals include black-tailed deer, black and grizzly bear, mountain goat, beaver, wolverine and weasel. Birds include spotted owl, marbled murrelet, northern goshawk, and great blue heron. Several river systems support salmon, steelhead, trout, and white sturgeon among others.

BCTS staff auction Crown timber to registrants in the timber sales program. BCTS prepares operational plans and issues timber sale licences and road permits. Successful bidders are awarded a timber sale licence and must fulfill licence, permit and operational plan obligations, including timber harvesting and road work within cutblocks.

BCTS's allowable annual cut from the Fraser TSA is about 247 000 cubic metres, and about 212 000 cubic metres was harvested by licensees during the audit period.

Map of the Audit Area



Audit Approach and Scope

This was a full scope compliance audit with a one-year timeframe. All activities carried out between June 1, 2013, and June 27, 2014, by BCTS and timber sale licence holders were subject to audit.

BCTS is responsible for operational planning, including preparing forest stewardship plans and site plans, silviculture activities, major structure[1] maintenance and construction, and most road construction, maintenance and deactivation outside of cutblocks.

Timber sale licensees are responsible for timber harvesting, fire protection, and most road construction, maintenance and deactivation within cutblocks.

Auditors assessed these activities for compliance with FRPA, the WA and applicable regulations. The standards and procedures used to carry out this audit are set out in the Board's *Compliance Audit Reference Manual, Version 7.0, September 2012.*

Three forest professionals, one professional engineer, and a chartered accountant made up the audit team. The audit team was in the field with BCTS staff from June 23 to 26, 2014, and accessed sites by road and by helicopter.

Planning and Practices Examined

BCTS Responsibilities

Operational Planning

BCTS planned its activities in its 2013 forest stewardship plan[11] (FSP). The FSP and stand-level site plans were examined to ensure that they met legislative requirements.

Auditors also examined site plans during harvesting, road and silviculture field sampling to ensure that they accurately identified site conditions.

There is no land use plan for the audit area. Instead, a number of government orders provide objectives for goat and deer winter range, habitat for species at risk and visual quality.

Road and Major Structure Construction, Maintenance and Deactivation

During the audit period, BCTS maintained 512 kilometres of road, installed 3 bridges and maintained 81 major culverts and bridges. BCTS did not construct or deactivate any roads during the audit period.

Auditors examined 347 kilometres of maintained roads, the installation of all 3 bridges and the maintenance of 30 major structures.

Silviculture Obligations and Activities

BCTS planted 46 cutblocks and brushed 2 cutblocks. Regeneration obligations were due on 42 cutblocks and free-growing obligations were due on a further 42 cutblocks.

Auditors examined 10 planted cutblocks, 2 brushed cutblocks, 42 cutblocks with regeneration obligations due and 28 cutblocks with free-growing obligations due.

Timber Sale Licensee Responsibilities

Timber Harvesting

Timber sale licensees harvested 43 cutblocks, of which the auditors examined 40.

Road and Major Structure Construction, Maintenance and Deactivation

Timber sale licensees constructed and then maintained 44 kilometres of road. Auditors examined all 44 kilometres of road construction and maintenance. Licensees did not deactivate any road. Auditors examined the one bridge built by a licensee.

Fire Protection

Auditors encountered nine active work sites and examined licensee compliance with the WA requirements for fire preparedness. Auditors also examined fire hazard assessment and abatement activities and obligations on the 40 cutblocks in the harvest sample.

Findings

The audit found that, except for visual quality objectives (VQOs), BCTS's planning and activities complied with FRPA and the WA. The issue with VQOs is discussed below.

The audit found that, except for bridge construction and culvert construction, the activities of the timber sale licensees complied with FRPA and the WA. The two activities with issues are discussed below.

The audit also identified unsound forest practices around streams and an area requiring improvement related to wildfire preparedness.

BCTS Responsibilities

Operational Planning – Visual Quality Objectives

BCTS planned a cutblock in a scenic area beside the Hope slide on the Crowsnest Highway. Government sets VQOs for scenic areas and, in this case, the VQO is retention, which means that harvesting must be difficult to see. Although the block was planned to meet the retention VQO and harvested according to the plan, the block is easy to see and the visual quality objective was not met.

Cutblock as seen from the Hope Slide viewpoint. Rubble from the Hope Slide is visible in the foreground.

Section 21(1) of FRPA states that the holder of a forest stewardship plan must ensure that the intended results specified in the plan are achieved and the strategies described in the plan are carried out. The FSP states that "The holder of the plan will not carry out or authorize timber harvesting or road construction in a scenic area unless the cutblock or road is consistent with the visual quality objective applicable to the area." As the block does not meet the VQO, it is not consistent with the FSP. This represents significant non-compliance with section 21(1) of FRPA, as the block is easily visible from a highly significant viewpoint.

Aside from the exception described above, planning activities were consistent with the FSP and legislative requirements. The FSP met the legal content requirements and addressed all the legal orders that apply to forest practices in the audit area. BCTS addressed site specific resources in the site plans by accurately identifying and prescribing practices for resource features, including streams and wetlands, community watersheds, visually sensitive areas and cultural or heritage sites.

Road and Major Structure Construction, Maintenance and Deactivation

Auditors found no issues with road maintenance within the audit area. Most of the roads were constructed a number of years ago and have been adequately maintained to retain the structural integrity of the prism. Most culverts were functional and natural drainage patterns were maintained. BCTS has a maintenance tracking system to record issues that require maintenance.

The three new bridges consisted of major reconstruction in one case and replacement of sills in two cases. All three structures were examined and no issues were identified. The ministry's regional engineering group was involved in all three cases and documentation was complete.

Silviculture Activities and Obligations

BCTS promptly plants cutblocks with suitable tree species and stock. Most blocks were planted with at least two species, with Douglas-fir and western red cedar being the most common. Multispecies planting is the usual practice. The juvenile tree performance in sampled blocks was good. BCTS's planting densities are resulting in adequate stocking.

BCTS is meeting the regeneration-due and free-growing milestones. In summary, auditors found no issues with silviculture planning or practices.

Timber Sale Licensee Responsibilities

Bridge Construction – TSL A88548 held by Karin Jane Ely

The licensee built a road and the plan called for a 1x5-metre wood box culvert to be installed across a creek. Instead, the licensee installed a 1x7-metre log stringer structure, which is considered a bridge. The *Forest Planning and Practices Regulation* (FPPR) sets out the requirements for bridge planning, design and construction.[iii] Section 72 of FPPR requires bridges to be structurally sound and safe for industrial users. Section 73 requires that bridges be designed and built according to certain standards, and section 77 requires that certain records be prepared and retained.

In this case, a bridge was never planned and, as a result, there was no documentation. There was no general arrangement drawing prepared, no crossing assurance statement was completed by a qualified professional, and no load rating was determined. In addition to the lack of documentation, auditors concluded that the structure, as installed, was unsafe. The stringers were not lashed together and were not attached to the sills, there were no guard logs or approach logs, and the sills were installed on un-compacted soil.

In summary, the licensee did not comply with sections 72, 73 and 77 of the FPPR and, given the potential safety issues, this is considered significant non-compliance.

Subsequent to the audit, the licensee informed the Board that the structure was removed. The licensee also stated they have changed procedures and now complete post-construction road reviews to determine if any changes were made to the plan.

Culvert Construction – TSL A88551 held by RWO Forestry Ltd.

A road design called for a 1x5-metre wood box culvert and a 1x5.5-metre wood box culvert to be installed on a road. Both culverts are located on the same S2 fish stream. The actual dimensions of the installed structures were 1x3.0 and 1x3.1, bearing to bearing. The culverts constricted the stream at both locations.

Section 55[iv] of the FPPR requires a person who builds a stream crossing to protect and mitigate disturbance to the stream channel and stream bank. The undersized culverts constrict the channel and debris, gravel and rock have disturbed the banks and channel. This non-compliance with section 55 of the FPPR is considered significant because the stream provides habitat for fish.

Subsequent to the audit, the licensee stated the culverts have been removed.

Practices Near Streams – TSL A89589 held by Wood King Contracting Ltd.

FRPA is results based legislation, relying on professionals to plan and perform the activities that will protect the various values found in the forest—in essence, achieve a satisfactory result on the ground. Professional foresters prepared site plans for two harvest blocks. The plans included specific prescriptions for streams within and adjacent to the cutblock boundaries, including the practices required to maintain the integrity of the stream channels while operating in these cutblock.

The practices identified to protect stream channels include "five-metre machine-free zones (MFZ)", "fall and yard away where possible", and "hand clean introduced debris." These three activities were consistent for all streams and non-classified drainages identified in the site plan.

On these two blocks, auditors observed several deviations from the site plan, including:

- not cleaning introduced debris from streams concurrent with harvesting
- not avoiding machine free zones
- not falling away and yarding away
- crossing a S4 fish stream where there was no designated crossing shown on the site plan
- crossing several S6 streams in either a different location than shown on the site plan or where there was no designated crossing shown on the site plan

In addition, auditors observed slash piles and harvested wood placed directly on top of, or right next to streams.

There is no legal requirement to follow a site plan. However, one of the key purposes of plans required under FRPA is to provide the public with confidence that work is professionally planned and executed. Subsequent failure to follow the plans could undermine public confidence. The Board's expectation is that harvesting is conducted according to the plan. Although FRPA allows for deviations from site plans, if plans change, the changes should be documented and signed off by a qualified registered professional. The Board also understands that the contractual requirements of the timber sale require that changes be approved by the BC Timber Sales manager before the activity takes place.

While the practices around streams comply with FRPA, the Board considers them to be unsound forest practices.[v]

Harvesting

Harvesting was generally conducted in accordance with legislative requirements and site plan obligations.

Riparian management included establishing wildlife tree patches around wetlands or creeks, retention of merchantable and non-merchantable timber adjacent to streams, where generally appropriate, and maintaining the integrity of wetlands with adequate buffers.

Road Construction and Maintenance

In-block road construction was generally conducted as per plans and in accordance with legislation. Aside from the bridge discussed above, no other bridges were constructed.

Fire Protection Activities

Of the nine active operations examined in the field, four separate licensees did not have an adequate fire suppression system on site, as required by section 6(3)(b)[vi] of the *Wildfire Regulation*. As the field

work inspections took place just as the weather began to change from cool and moist spring conditions with snow at higher elevations to summer conditions, this is only considered an area of improvement.

Auditors found no significant issues with fire hazard assessment and no concerns were identified with fire hazard abatement. Licensees piled slash for burning once harvesting was complete.

Audit Opinion

In my opinion, except for the issues discussed below, the operational planning, timber harvesting, road construction and maintenance, silviculture, and fire protection activities carried out by BC Timber Sales and its timber sale licence holders in the Fraser Timber Supply Area complied in all significant respects with the requirements of the *Forest and Range Practices Act*, the *Wildfire Act* and related regulations, as of June 2014. No opinion is provided regarding road deactivation.

In reference to compliance, the term "in all significant respects" recognizes that there may be minor instances of non-compliance that either may not be detected by the audit, or that are detected but not considered worthy of inclusion in the audit report.

As described in the *Visual Quality Objectives* section of the report, the audit identified a significant non-compliance related to the achievement of a visual quality objective.

As described in the *Bridge Construction* section of the report, the audit identified a situation of significant non-compliance related to the construction of an unsafe bridge.

As described in the *Culvert Construction* section of the report, the audit identified a situation of significant non-compliance related to the disturbance of a stream channel and bank.

Without further qualifying my opinion, I draw attention to the *Practices Near Streams* section of the report, which identifies unsound forest practices related to harvesting activity around streams.

Also, without further qualifying my opinion, I draw attention to the *Fire Protection Activities* section of the report, which describes an area requiring improvement.

The *Audit Approach and Scope* and the *Planning and Practices Examined* sections of this report describe the basis of the audit work performed in reaching the above conclusion. The audit was conducted in accordance with the auditing standards of the Forest Practices Board. Such an audit includes examining sufficient forest planning and practices to support an overall evaluation of compliance with FRPA and WA.

C R Mosher

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Director, Audits

Victoria, British Columbia
March 16, 2015

Appendix 1:
Forest Practices Board Compliance Audit Process

Background

The Forest Practices Board conducts audits of government and agreement-holders under the *Forest and Range Practices Act* (FRPA), section 122 and the *Wildfire Act* (WA). Compliance audits examine forest or range planning and practices to determine whether or not they meet FRPA and/or WA requirements.

Selection of Auditees

The Board conducts about eight or nine compliance audits annually. Most of these are audits of agreement holders. The Board also audits the government's BC Timber Sales Program (BCTS). This section describes the process for selecting agreement holders to audit.

To begin with, auditors randomly select an area of the Province, such as a district. Then the auditors review the forest resources, geographic features, operating conditions and other factors in the area selected. These are considered in conjunction with Board strategic priorities (updated annually), and the type of audit is determined. At this stage, we choose the auditee(s) that best suits the selected risk and priorities. The audit selections are not based on past performance.

For example, in 2010, the Board randomly selected the Mackenzie district as a location for an audit. After assessing the activities within that area, we discovered that a large licensee had recently closed operations due to financial problems. As the Board has expressed concern in the past about financially strapped companies failing to meet outstanding obligations, such as reforestation and road maintenance, and we knew that some of the licence area is very remote, the new licence holder was selected for audit.

For BCTS audits, a district within 1 of the 12 business areas within the province is selected randomly for audit.

Audit Standards

Audits by the Board are conducted in accordance with the auditing standards developed by the Board. These standards are consistent with Canadian generally accepted auditing standards. The standards for compliance audits are described in the Board's *Compliance Audit Reference Manual*.

Audit Process

Conducting the Audit

Once the Board randomly selects an area or district and determines the scope of audit to be conducted and the licensee(s) to be audited, all activities carried out during the period subject to audit are identified (such as harvesting or replanting, and road construction or deactivation activities). Items that make up each forest activity are referred to as a population. For example, all sites harvested form the timber harvesting population and all road sections constructed form the road construction population.

A separate sample is then selected for each population (e.g., the cutblocks selected for auditing timber harvesting). Within each population, more audit effort (i.e., more audit sampling) is allocated to areas where the risk of non-compliance is greater.

Audit fieldwork includes assessments of features using helicopters and ground procedures, such as measuring specific features like riparian reserve zone width. The audit teams generally spend one week in the field.

Evaluating the Results

The Board recognizes that compliance with the many requirements of FRPA and WA is more a matter of degree than absolute adherence. Determining compliance, and assessing the significance of non-compliance, requires the exercise of professional judgment within the direction provided by the Board.

The audit team, composed of professionals and technical experts, first determines whether forest practices comply with legislated requirements. For those practices considered to not be in compliance, the audit team then evaluates the significance of the non-compliance, based on a number of criteria, including the magnitude of the event, the frequency of its occurrence and the severity of the consequences.

Auditors categorize their findings into the following levels of compliance:

Compliance – where the auditor finds that practices meet FRPA and WA requirements.

Not significant non-compliance – where the auditor, upon reaching a non-compliance conclusion, determines that one or more non-compliance event(s) is not significant and not generally worthy of reporting. However, in certain circumstances, events that are considered not significant non-compliance may be reported as an area requiring improvement.

Significant non-compliance – where the auditor determines a non-compliance event(s) or condition(s) is or has the potential to be significant, and is considered worthy of reporting.

Significant breach – where the auditor finds that significant harm has occurred, or is beginning to occur, to persons or the environment as a result of one or many non-compliance events.

If it is determined that a significant breach has occurred, the auditor is required by the *Forest Practices Board Regulation* to immediately advise the Board, the party being audited, and the Minister of Forests, Lands and Natural Resource Operations.

Reporting

Based on the above evaluation, the auditor then prepares a draft audit report. The party being audited is given a draft of the report for review and comment before it is submitted to the Board.

Once the auditor submits the draft report, the Board reviews it and determines if the audit findings may adversely affect any party or person. If so, the party or person must be given an opportunity to make representations before the Board decides the matter and issues a final report. The representations allow parties that may potentially be adversely affected to present their views to the Board.

The Board then reviews the draft report from the auditor and the representations from parties that may potentially be adversely affected before preparing its final report. Once the representations have been completed, the report is finalized and released: first to the auditee and then to the public and government.

ENDNOTES

[i] Major structure includes bridges and major culverts.

- Bridge means a temporary or permanent crossing structure with a span length equal to or greater than 6 metres or an abutment height of 4 metres or greater.
- Major culvert has a pipe diameter of 2 metres or greater or is a pipe or open bottom arch with a span greater than 2.13 metres.

http://www.for.gov.bc.ca/hth/engineering/documents/publications_guidebooks/manuals_standards/Eng-Manual.pdf

[ii] A forest stewardship plan (FSP) is a key planning element in the FRPA framework and the only plan subject to public review and comment and government approval. In FSPs licensees are required to identify results and/or strategies consistent with government objectives for values such as water, wildlife and soils. These results and strategies must be measurable and once approved are subject to government enforcement. FSPs identify areas within which road construction and harvesting will occur but are not required to show the specific locations of future roads and cut blocks. FSPs can have a term of up to five years.

[iii] ***Roads and associated structures***

72 A person who constructs or maintains a road must ensure that the road and the bridges, culverts, fords and other structures associated with the road are structurally sound and safe for use by industrial users.

Design of bridges

73 A person who builds a bridge for the purpose of constructing or maintaining a road must ensure that the design and fabrication of the bridge

(a) meets or exceeds standards applicable to roads at the time the design or fabrication is done, in respect of

(i) bridge design, as established by the Canadian Standards Association, Canadian Highway Bridge Design Code, CAN/CSA-S6, and

(ii) soil properties, as they apply to bridge piers and abutments, as established by the Canadian Foundation of Engineering Manual, and

(b) takes into account the effect of logging trucks with unbalanced loads and off-centre driving.

Retaining information

77 (1) A person who builds a bridge or major culvert for the purpose of constructing or maintaining a road must do all of the following:

(a) prepare or obtain

(i) pile driving records,

(ii) for new materials used to build the bridge or major culvert, mill test certificates, in-plant steel fabrication drawings, and concrete test results,

(iii) soil compaction results, and

(iv) other relevant field and construction data;

(b) prepare as-built drawings of the bridge or major culvert;

(c) retain the information referred to in paragraphs (a) and (b) until the earlier of the date that

(i) the bridge or major culvert is removed, and

(ii) the person is no longer required to maintain the road.

(2) Subject to subsection (3), a person responsible for maintaining a road must retain a copy of inspection records for a bridge or major culvert associated with the road for at least one year after the bridge or major culvert is removed from the site.

(3) Unless the road has been deactivated, a person must submit to the district manager or the timber sales manager, as applicable, the documents, drawings and records described in subsections (1) and (2) in respect of a road if the person is no longer required to maintain the road because the district manager or timber sales manager

(a) cancelled the road permit, road use permit or special use permit for the road, and

(b) does not require the road to be deactivated.

[iv] **Stream crossings**

55 (1) An authorized person who builds a stream crossing as part of a road, a temporary access structure or permanent access structure must locate, build and use the crossing in a manner that

(a) protects the stream channel and stream bank immediately above and below the stream crossing, and

(b) mitigates disturbance to the stream channel and stream bank at the crossing.

(2) An authorized person who builds a stream crossing as part of a temporary access structure must remove the crossing when it is no longer required by the person.

[v] Unsound forest or range practices are significant identified practices that, although they are found to be in compliance with FRPA or WA, are considered to not be sound management. In these cases, the Board may wish to not only report the practices, but may also make a recommendation, either to mitigate potential harm or as a deterrent to continuing the practice in future.

These items could include a compliant forest or range activity, or activities, that is not considered sound management, and that, if repeated by the auditee, is likely to cause harm to personal safety or the environment.

- For example, where a non-professional amends a professionally developed plan in a substantial manner, without a documented, sound rationale and without consulting a qualified registered professional — such as changing the harvest system or side-casting road building material where full bench end-haul was prescribed.
- For example, where the auditee has harvested a 60-hectare cutblock and has caused extensive soil disturbance on a 5-hectare patch of the cutblock. Although the auditee is allowed under legislation to cause 6 hectares (10 percent) of soil disturbance across the cutblock, the fact that the disturbance is focussed in one area is not considered sound forest management and has caused harm to the environment.

[vi] ***High risk activities***

6 (3) If there is a risk of a fire starting or spreading, a person carrying out a high risk activity on or within 300 m of forest land or grass land must

(a) do so in accordance with the applicable restriction and duration set out in Schedule 3 for the Fire Danger Class, and

(b) keep at the activity site

(i) fire fighting hand tools, in a combination and type to properly equip each person who works at the site with a minimum of one fire fighting hand tool, and

(ii) an adequate fire suppression system.

Forest
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